

ANNOTATED LIST OF THE BARK AND AMBROSIA BEETLES
(COLEOPTERA: SCOLYTIDAE) OF MARYLAND, WITH NEW
DISTRIBUTIONAL RECORDS

ROBERT J. RABAGLIA

Forest Pest Management, Maryland Department of Agriculture, 50 Harry S. Truman Parkway, Annapolis, MD 21401, U.S.A. (E-mail: rabaglrj@mda.state.md.us)

Abstract.—A total of 110 species of Scolytidae are reported from Maryland. Thirty species reported new to Maryland are: *Hylastes opacus* Erichson, *Dendroctonus valens* LeConte, *Tomicus piniperda* (L.), *Phloeotribus dentifrons* (Blackman), *Carphoborus bicornis* Wood, *Polygraphus rufipennis* (Kirby), *Hylocurus flaglerensis* Blackman, *Micracisella opacicollis* (LeConte), *Ips avulsus* (Eichhoff), *Dryocoetes affaber* (Mannerheim), *D. autographus* (Ratzburg), *D. granicollis* (LeConte), *Lymantor decipiens* (LeConte), *Trypodendron betulae* Swaine, *T. lineatum* (Olivier), *T. retusum* (LeConte), *T. scabricollis* (LeConte), *Ambrosiodmus obliquus* (LeConte), *Xyleborus planicollis* Zimmermann, *Xylosandrus crassiusculus* (Motschulsky), *Cryphalus rubentis* Hopkins, *Pityoborus commatus* (Zimmermann), *Pityophthorus balsameus* Blackman, *P. cariniceps* LeConte, *P. confusus* Blandford, *P. liquidambarus* Blackman, *P. opaculus* LeConte, *P. puberulus* (LeConte), *Pseudopityophthorus asperulus* (LeConte), and *Corthylus punctatissimus* (Zimmermann). Of the 110 species reported in the state, 19 are not native to North America.

Key Words: Scolytidae, distribution, Maryland

The geography of Maryland is exceptionally diverse for its small size. Five physiographic provinces cover the State from east to west (Coastal Plain, Piedmont, Ridge and Valley, Blue Ridge, and Allegheny Plateau). With this diversity in land forms comes a diversity of forest types. In addition, due to its position in the Mid-Atlantic Region, forest types commonly found in the southeastern U.S. and the northeastern U.S. can be found in Maryland.

The variety of forests in Maryland is reflected in its forest insect fauna. This is especially true of the bark and ambrosia beetles. On the Coastal Plain in southeastern Maryland, southern species, such as *Dendroctonus frontalis* (Zimmermann), are common, whereas in the mountainous,

western portion of the State, more northern species, such as *Polygraphus rufipennis* (Kirby) are found. Historically, many general collectors and scolytid specialists at the National Museum of Natural History, Smithsonian Institution (USNM), Washington, DC and USDA in Beltsville, MD, have collected extensively in Maryland. The USNM collection and publications from the first half of the 20th century contains many bark beetle records from the state; however, recently there has been very little information on the scolytid fauna of Maryland.

Since 1987, bark beetle collecting and surveys have been conducted as part of the routine forest pest survey activities by the Maryland Department of Agriculture. Additionally, since 1993, an extensive trapping

Table 1. Non-native scolytids found in Maryland.

Species	Origin	Year
<i>Ambrosiodmus rubricollis</i> (Eichhoff)	Asia	1940's
<i>Dryoxylon onoharaensum</i> (Murayama)	Asia	1990's
<i>Eurwallacea validus</i> (Eichhoff)	Asia	1980's
<i>Hylastes opacus</i> Erichson	Europe	1990's
<i>Hylastinus obscurus</i> (Marshall)	Europe	<1900
<i>Hypothenemus californicus</i> Hopkins	Neotropics?	19??
<i>Hypothenemus crudiae</i> (Panzer)	Neotropics?	19??
<i>Scolytus mali</i> (Bechstein)	Europe	1950's
<i>Scolytus multistriatus</i> (Marshall)	Europe	1900's
<i>Scolytus rugulosus</i> (Muller)	Europe	<1900
<i>Tomicus piniperda</i> (Linnaeus)	Europe	1990's
<i>Xyleborinus saxeseni</i> (Ratzeburg)	Europe	<1900
<i>Xyleborus pelliculosus</i> Eichhoff	Asia	1980's
<i>Xyleborus pfeili</i> (Ratzeburg)	Europe	1990's
<i>Xyleborus atratus</i> Eichhoff	Asia	1980's
<i>Xyleborus californicus</i> Wood	Asia	1990's
<i>Xyleborus dispar</i> (Fabricius)	Europe	1900's
<i>Xylosandrus germanus</i> (Blandford)	Asia	1930's
<i>Xylosandrus crassiusculus</i> (Motschulsky)	Asia	1980's

program has been conducted as part of several USDA-APHIS programs to survey for exotic bark beetles that may have been introduced into the US.

One hundred ten species are listed herein as occurring in Maryland. This is comparable to the numbers of species reported from some of the much larger western states (Furniss et al. 1992, Furniss and Johnson 1987, Gast et al. 1989). Since 1987, 106 species have been collected in the above mentioned surveys, the remaining four species are from historical records. Thirty species are reported as new to Maryland. Most of these new records are for species previously reported in one or more neighboring states. The exceptions are *Pityoborus commatus* (Zimmermann) and *Hyllocurus flaglerensis* Blackman with closest records from North Carolina and Florida, respectively. In a recent paper (Rabaglia and Williams 2002), two species of *Hylesinus* from western and midwestern North America were reported from Maryland.

Sources of published records are Wood and Bright (1992) and Bright and Skidmore (1997). Species listed as "Newly Reported in Maryland" are those species not listed

from Maryland in these publications or other refereed publications since 1994. Species electronically reported as occurring in Maryland (i.e., *Tomicus piniperda* (L.), *Hylastes opacus* Erichson and *Xylosandrus crassiusculus* (Motschulsky)) are reported as new in this publication.

Of the 110 species now reported from Maryland, 19 are not native to North America (Table 1). Recent publications have discussed the origins and the increasing occurrence of these introductions (Atkinson et al. 1990 and Vandenberg et al. 2002). Since 1980, nine species of exotic scolytids have become established in Maryland, six of which are native to Asia. With increasing trade, an active shipping port and a diversity of forests, this number is likely to continue to increase.

Abbreviations for repositories of specimens new to Maryland are: MDAC—Maryland Department of Agriculture, Annapolis, MD; RJRC—Robert J. Rabaglia collection, Annapolis, MD and USNM—National Museum of Natural History, Smithsonian Institution, Washington, DC. Numbers of specimens appear in parenthesis with abbreviations.

NEW MARYLAND RECORDS OF SCOLYTIDAE

Species are arranged taxonomically as listed in Wood and Bright (1992). For Maryland localities, the first Maryland record is given, followed by other counties from which the species has been collected.

Subfamily Hylesiniinae

Hylastes opacus Erichson

Distribution.—Asia, Europe: USA: ME, NH, NY, VT, VA, WV, MD: Garrett Co., Keyser's Ridge, 25 April 1996, Virginia pine log, MDA coll. (1, MDAC). Other counties: Allegany, Baltimore, Carroll, Cecil, Harford, Queen Anne's, Washington. Comments: This exotic bark beetle is becoming increasingly common in stumps of cut pine trees, and survey traps baited with α -pinene.

Dendroctonus valens LeConte

Distribution.—USA: AZ, CA, CO, DE, ID, IL, IN, KS, ME, MA, MI, MN, MT, NV, NH, NJ, NM, NY, NC, OH, OR, PA, SD, UT, VT, VA, WA, WV, WI, WY, MD: Anne Arundel Co., Annapolis, 6 April 1988, R.J. Rabaglia coll. (1, MDAC). Other counties: Allegany, Baltimore, Carroll, Cecil, Frederick, Garrett, Harford, Montgomery, Queen Anne's, Washington. Comments: The red turpentine beetle is a common species across the state except for the extreme southeastern Coastal Plain where it is replaced by *Dendroctonus terebrans* (Olivier).

Tomicus piniperda (L.)

Distribution.—Africa, Asia, Europe: USA: IL, IN, ME, MI, NH, NY, OH, PA, VT, WI, MD: Allegany Co., Oldtown, 3 April 1995, ex: α -pinene-baited trap, MDA coll. (1, USNM). Other counties: Frederick, Garrett, Washington. Comments: The pine shoot beetle has been found only in α -pinene baited funnel traps in the four western counties. It has not been collected in trees through 2001.

Phloeotribus dentifrons (Blackman)

Distribution.—USA: DC, FL, IL, KS, LA, MI, MS, NJ, ND, OH, PA, SC, TX, VA, WV, MD: Kent Co., Meliota, 7 May 1997, MDA coll. ex: Ipslure-baited trap (1, MDAC).

Carphoborus bicornis Wood

Distribution.—USA: AL, DC, FL, PA, SC, MD: Talbot Co., Trappe, 2 February 1988, R.J. Rabaglia coll. (3, MDAC). Other counties: Baltimore, Calvert, Caroline, Queen Anne's, Wicomico.

Polygraphus rufipennis (Kirby)

Distribution.—USA: AK, AZ, CO, DC, ID, ME, MA, MI, MN, MT, NH, NJ, NM, NY, NC, ND, OR, PA, SD, TN, UT, VT, VA, WA, WV, WY, MD: Garrett Co., Bittinger, 29 July 1988, R.J. Rabaglia coll. (1, MDAC).

Subfamily Scolytinae

Hylocurus flaglerensis Blackman

Distribution.—USA: DE, FL, MD: Kent Co., Sandy Bottom, 3 May 1994, R.J. Rabaglia coll. (1, RJRC). Other counties: Baltimore, Talbot. Comments: Prior to these collections, and collections in Delaware (Rabaglia and Valenti 2003), this species was known only from the type series in Florida.

Micracisella opacicollis (LeConte)

Distribution.—USA: DE, DC, IL, GA, KS, MA, MI, MN, MO, NJ, NY, NC, OH, PA, VA, WV, MD: Frederick Co., Ijamsville, 21 April, 1995, MDA coll. ex: Ipslure-baited trap (1, MDAC).

Ips avulsus (Eichhoff)

Distribution.—USA: AL, AR, DC, FL, GA, LA, MS, NJ, NC, PA, SC, TX, VA, WV, WI, MD: Washington Co., Ft Frederick State Park, 19 October 1993, R.J. Rabaglia coll. ex: Ipslure-baited trap (3, MDAC). Other counties: Anne Arundel,

Montgomery, Prince George's, St. Mary's, Talbot, Washington, Wicomico, Worcester.

Dryocoetes affaber (Mannerheim)

Distribution.—USA: AK, AZ, CO, ID, ME, MI, MN, MT, NH, NM, NY, NC, OR, PA, SD, TN, UT, WA, WV, WI, WY, MD: Garrett Co., Swallow Falls State Park, 27 June 1995, R.J. Rabaglia coll. (1, MDAC).

Dryocoetes autographus (Ratzeburg)

Distribution.—Africa, Asia, Europe; USA: AK, CA, CO, DE, ME, MI, MN, MT, NV, NH, NM, NY, NC, OR, PA, SD, TN, UT, VA, WA, WV, WI, WY, MD: Garrett Co., Swallow Falls State Park, 27 June 1995, R.J. Rabaglia coll. (2, MDAC).

Dryocoetes granicollis (LeConte)

Distribution.—USA: AR, DE, DC, FL, GA, IL, KY, LA, MO, NJ, NY, NC, OH, PA, TX, VA, MD: Baltimore Co., Glen Arm, 30 May 1987, W. Steiner coll. (2, USNM). Other counties: Anne Arundel, Baltimore, Cecil, Queen Anne's, St. Mary's.

Lymantor decipiens (LeConte)

Distribution.—USA: DE, IA, KY, ME, MA, MI, MN, MS, NJ, NY, OH, PA, VA, WV, MD: Caroline Co., Tuckahoe State Park, 5 May 1994, R.J. Rabaglia coll. (1, MDAC). Other counties: Allegany, Baltimore, Caroline, Carroll, Cecil, Frederick, Harford, Kent.

Trypodendron betulae Swaine

Distribution.—USA: ID, ME, MA, MO, MT, NH, NJ, NY, OR, SD, WI, MD: Garrett Co., Hutton, 10 April 1995, MDA coll. ex: α -pinene baited trap (1, MDAC).

Trypodendron lineatum (Olivier)

Distribution.—Africa, Asia, Europe; USA: AK, AZ, CA, CO, CT, DC, ME, MI, MO, MT, NV, NH, NM, NY, OR, PA, SD, TN, UT, WA, WV, WY, MD: Garrett Co., Accident, 5 May 1993, MDA coll. ex: terpene-baited trap (2, MDAC). Other counties: Washington.

Trypodendron retusum (LeConte)

Distribution.—USA: AZ, CA, CO, CT, ID, MI, MO, MT, NV, NH, NM, NY, OR, PA, SD, UT, VT, WA, WV, WI, WY, MD: Garrett Co., Accident, 12 April 1994, Joe Winters coll. ex: Ipslure-baited trap (1, MDAC).

Trypodendron scabricollis (LeConte)

Distribution.—USA: AR, ME, MO, MS, NJ, NC, PA, SC, VA, WV, MD: Allegany Co., Luke, 3 April 1995, MDA coll. α -pinene-baited trap (1, MDAC). Other counties: Anne Arundel, Frederick, Garrett, Montgomery, Washington.

Ambrosiodmus obliquus (LeConte)

Distribution.—Africa, South America; USA: DE, DC, FL, GA, LA, MS, NC, VA, MD: Charles Co., Cedarville State Forest, 3 June 1988, R.J. Rabaglia coll. (1, RJRC). Other counties: Anne Arundel, Dorchester, Kent, Queen Anne's, St. Mary's, Talbot.

Xyleborus planicollis Zimmermann

Distribution.—USA: IL, IN, MO, NC, PA, MD: Garrett Co., Accident, 1 October 1999, MDA coll. ex: Allison-Pike trap (1, MDAC).

Xylosandrus crassiusculus (Motschulsky)

Distribution.—Africa, Asia; USA: DE, FL, GA, LA, MS, NC, SC, TX, MD: Washington Co., Big Pool, 29 July 1993, R.J. Rabaglia coll. ex: Frontalin-baited trap (1, MDAC). Other counties: Anne Arundel, Baltimore, Cecil, Harford, Kent, Prince George's, Queen Anne's, Worcester. Comments: Commonly known as the Asian ambrosia beetle, this species is becoming increasingly common in survey traps, and occasionally attacks landscape trees and nursery stock.

Cryphalus rubentis Hopkins

Distribution.—USA: NC, PA, WV, MD: Garrett Co., Table Rock, 10 April 1995, MDA coll. ex: α -pinene-baited trap (3, MDAC). Other counties: Allegany, Com-

ments: Hundreds of specimens have been collected in funnel traps baited with α -pinene in the western counties.

Pityoborus commatus (Zimmermann)

Distribution.—USA: AL, FL, GA, LA, MS, NC, SC, MD: Cecil Co., Elk Neck State Forest, 17 April 1997, MDA coll. ex: sulcatol-baited trap (5, MDAC). Comments: This is the first record of this species north of North Carolina. It has been found only in sulcatol-baited funnel traps.

Pityophthorus balsameus Blackman

Distribution.—USA: ME, MI, MN, NH, NY, NC, WV, WI, MD: Garrett Co., Key-sers Ridge, 28 May 1997, MDA coll. ex: spruce (1, MDAC).

Pityophthorus cariniceps LeConte

Distribution.—USA: CT, DE, IN, KY, ME, MA, MI, MN, NH, NY, NC, OH, PA, SC, VA, WI, MD: Baltimore Co., Loch Raven Resv., 20 April 1993, R.J. Rabaglia coll. ex: Ipslure-baited trap (1, MDAC). Other counties: Allegany, Cecil, Frederick, Garrett, Harford. Comments: This twig-infesting species probably occurs state-wide, and is found often in Ipslure-baited funnel traps.

Pityophthorus confusus Blandford

Distribution.—USA: AL, AR, DE, FL, GA, LA, MS, NC, PA, SC, TX, VA, WV, MD: Talbot Co., Seth State Forest, 29 June 1988, R.J. Rabaglia coll. (1, MDAC). Other counties: Cecil, Dorchester, Prince George's, St. Mary's, Worcester.

Pityophthorus liquidambarus Blackman

Distribution.—USA: AR, CT, DE, DC, FL, GA, IL, IN, IA, LA, MS, NC, WV, MD: Somerset Co., Wellington, 19 May 1994, R.J. Rabaglia coll. (1, MDAC). Other counties: Charles.

Pityophthorus opaculus LeConte

Distribution.—USA: AK, AZ, CA, CO, DE, ID, ME, MI, MN, NV, NH, NM, NY,

PA, SD, UT, WV, WY, MD: Carroll Co., Eldersburg, 1 June 1995, MDA coll. ex: Chalcoprax-baited trap (1, MDAC).

Pityophthorus puberulus (LeConte)

Distribution.—USA: DE, DC, IN, KS, KY, ME, MA, MI, MN, NH, IA, NJ, NY, NC, OH, PA, RI, VA, WV, WI, MD: Cecil Co., Chesapeake City, 25 April 1994, R.J. Rabaglia coll. (1, MDAC). Other counties: Allegany, Calvert, Garrett, Howard, Kent, Prince George's, St. Mary's, Talbot, Washington.

Pseudopityophthorus asperulus (LeConte)

Distribution.—USA: CT, DC, FL, GA, IL, LA, ME, MA, MS, MI, NJ, NY, NC, PA, TN, TX, WV, MD: St. Mary's Co., Hollywood, 12 June 1996, R.J. Rabaglia coll. (1, MDAC).

Corthylus punctatissimus (Zimmermann)

Distribution.—USA: AR, CO, CT, DC, FL, GA, IL, KY, MA, MI, MN, MS, NH, NJ, NY, NC, OH, PA, RI, TN, VT, VA, WV, MD: Montgomery Co., Brighton, 13 April 1995, MDA coll. ex: Ipslure-baited trap, (1, MDAC). Other counties: Anne Arundel, Cecil, Kent.

LIST OF MARYLAND SCOLYTIDAE

- a = Species newly reported in Maryland.
 b = Exotic species found in Maryland.
 c = Species previously reported in Maryland, but not collected in recent surveys.

Hylesiniinae

Hylastini

- Hylastes opacus* Erichson—a,b
Hylastes porculus Erichson
Hylastes salebrosus Eichhoff
Hylastes tenuis Eichhoff
Hylurgops rugipennis pinifex (Fitch)

Hylesinini

- Hylastinus obscurus* (Marshall)—b
Hylesinus aculeatus Say
Hylesinus californicus (Swaine)

Hylesinus criddlei (Swaine)
Hylesinus fasciatus LeConte
Hylesinus pruinosus Eichhoff

Tomicini

Dendroctonus frontalis (Zimmermann)
Dendroctonus terebraus (Olivier)
Dendroctonus valens LeConte—a
Hylurgopinus rufipes (Eichhoff)
Tomicus piniperda (L.)—a,b

Bothrosternini

Cnesinus strigicollis LeConte

Phloeotribini

Phloeotribus dentifrons (Blackman)—a
Phloeotribus frontalis (Fabricius)
Phloeotribus limuiaris (Harris)

Phloeosinini

Chramesus chapuisi LeConte—c
Chramesus hicoriae LeConte
Phloeosinus dentatus (Say)

Polygraphini

Carphoborus bicornis Wood—a
Carphoborus bifurcus Eichhoff
Polygraphus rufipennis (Kirby)—a

Scolytinae

Scolytini

Scolytus mali (Bechstein)—b
Scolytus multistriatus (Marshall)—b
Scolytus muticus Say
Scolytus quadrispinosus Say
Scolytus rugulosus (Muller)—b

Micracini

Hylocurus flaglerensis Blackman—a
Hylocurus langstoni Blackman—c
Hylocurus rudis (LeConte)
Micracis saturalis LeConte
Micracis swainei Blackman
Micracisella opacicollis (LeConte)—a
Pseudothysanoes lecontei Blackman
Thysanoes fimbriicornis LeConte

Ipini

Ips avulsus (Eichhoff)—a
Ips calligraphus (Germar)

Ips grandicollis (Eichhoff)
Ips pini (Say)
Orthotomicus caelatus (Eichhoff)
Pityogenes hopkinsi Swaine
Pityogenes plagiatus (LeConte)

Dryocoetini

Dryocoetes affaber (Mannerheim)—a
Dryocoetes autographus (Ratzburg)—a
Dryocoetes betulae Hopkins
Dryocoetes granicollis (LeConte)—a
Dryoxylon onoharaensum (Murayama)—b
Lymantor decipiens (LeConte)—a

Crypturgini

Crypturgus alutaceus Schwarz

Xyloterini

Trypodendron betulae Swaine—a
Trypodendron lineatum (Olivier)—a
Trypodendron retusum (LeConte)—a
Trypodendron schricollis (LeConte)—a
Xyloterinus politus Say

Xyleborini

Ambrosiodmus obliquus (LeConte)—a
Ambrosiodmus rubricollis (Eichhoff)—b
Ambrosiodmus tachygraphus (Zimmermann)
Euwallucea validus (Eichhoff)—b
Xyleborinus saxseni (Ratzburg)—b
Xyleborus affinis Eichhoff
Xyleborus atratus Eichhoff—b
Xyleborus californicus Wood—b
Xyleborus celsus Eichhoff
Xyleborus dispar (Fabricius)—b
Xyleborus ferrugineus (Fabricius)
Xyleborus intrusus Blandford
Xyleborus pelliculosus Eichhoff—b
Xyleborus pfeili (Ratzburg)—b
Xyleborus planicollis Zimmermann—a
Xyleborus pubescens Zimmermann
Xyleborus sayi (Hopkins)
Xyleborus viduus Eichhoff
Xyleborus xylographus (Say)
Xylosandrus crassiusculus (Motschulsky)—a,b
Xylosandrus germanus (Blandford)—b

Cryphalini

- Cryphalus rubentis* Hopkins—a
Hypothenemus californicus Hopkins—b
Hypothenemus crudiae (Panzer)—b
Hypothenemus dissimilis (Zimmermann)
Hypothenemus eruditus Westwood
Hypothenemus interstitialis (Hopkins)
Hypothenemus rotundicollis (Eichhoff)
Trischidas atoma (Hopkins)—c

Corthylini

- Conophthorus coniperda* (Schwarz)
Corthylus columbianus Hopkins
Corthylus punctatissimus (Zimmermann)—a
Gnathotrichus materiarius (Fitch)
Monarthrum fasciatum (Say)
Monarthrum mali (Fitch)
Pityoborus commatus (Zimmermann)—a
Pityophthorus balsameus Blackman—a
Pityophthorus cariniceps LeConte—a
Pityophthorus confusus Blandford—a
Pityophthorus crinalis Blackman
Pityophthorus dentifrons Blackman—c
Pityophthorus lautus Eichhoff
Pityophthorus liquidambarus Blackman—a
Pityophthorus opaculus LeConte—a
Pityophthorus puberulus (LeConte)—a
Pityophthorus pulchellus Eichhoff
Pityophthorus pulicarius (Zimmermann)
Pityophthorus pullus (Zimmermann)
Pseudopityophthorus asperulus (LeConte)
 —a
Pseudopityophthorus minutissimus (Zimmermann)
Pseudopityophthorus pruinosis (Eichhoff)
Pseudopityophthorus pubescens Blackman

ACKNOWLEDGMENTS

Donald E. Bright identified or verified the identity of many of the specimens, his

help is greatly appreciated. I also thank the Maryland Department of Agriculture field staff for aiding in survey trap setup and collections. Also thanks to Gaye Williams for her critical reviews of earlier drafts of the manuscript.

LITERATURE CITED

- Atkinson, T. H., R. J. Rabaglia, and D. E. Bright. 1990. Newly detected exotic species of *Xyleborus* (Coleoptera: Scolytidae) with a revised key to species in eastern North America. *Canadian Entomologist* 122: 92–104.
- Bright, D. E. and R. E. Skidmore. 1997. A catalog of Scolytidae and Platypodidae (Coleoptera). Supplement 1 (1990–1994). National Research Council Research Press, Ottawa, Ontario, 368 pp.
- Furniss, M. M. and J. B. Johnson. 1987. List of Idaho Scolytidae (Coleoptera) and notes on new records. *Great Basin Naturalist* 47: 375–382.
- Furniss, M. M., J. B. Johnson, R. L. Wescott, and T. R. Torgersen. 1992. List of Oregon Scolytidae (Coleoptera) and notes on new records. *Great Basin Naturalist* 52: 373–378.
- Gast, S. J., M. M. Furniss, J. B. Johnson, and M. A. Ivie. 1989. List of Montana Scolytidae (Coleoptera) and notes on new records. *Great Basin Naturalist* 49: 381–386.
- Rabaglia, R. J. and G. L. Williams. 2002. Two species of western North American *Hylesinus* Fabricius (Coleoptera: Scolytidae) new to the eastern United States. *Proceedings of the Entomological Society of Washington*. 104: 1058–1060.
- Rabaglia, R. J. and M. A. Valenti. 2003. Annotated list of the bark and ambrosia beetles (Coleoptera: Scolytidae) of Delaware, with new distributional records. *Proceedings Entomological Society of Washington*. 105: 312–319.
- Vandenberg, N. J., R. J. Rabaglia, and D. E. Bright. 2000. New records of two *Xyleborus* (Coleoptera: Scolytidae) in North America. *Proceedings of the Entomological Society of Washington*. 102(1): 62–68.
- Wood, S. L. and D. E. Bright. 1992. A Catalog of Scolytidae and Platypodidae (Coleoptera). Part 2: Taxonomic Index. *Great Basin Naturalist Memoirs* No. 13.